CHAPTER 5. THE MEMBERS OF EACs

5.1 Introduction

In this chapter I address three questions: (a) Who are the EAC participants? (b) Are all small farmers equally likely to participate in these business-oriented organizations? and (c) Do the poorest farmers have an equal participation rate as the wealthier farmers?

These are important questions for at least two different policy objectives:

(1) Reducing rural poverty: it is important to know if the poor and the extremely poor are being included in these organizations.

(2) Diversifying small-scale agriculture away from traditional commodities and towards more competitive and profitable enterprises: it is important to know if all small-scale farms are equally likely to participate in these organizations regardless of their type of production or productive capacities.

Current public policies, in particular those of INDAP, make no *de jure* discrimination between different types of farmers in terms of the support they can receive if they want to set up an EAC. It is assumed that all small-scale farmers can take advantage of the instruments and programs which support EAC development. Yet not all small farmers may be equally interested in participating in these organizations, and/or some farmers who would like to join may face *de facto* barriers to doing so.

In this chapter I assume that the participation of a small farmer in an EAC is determined by the interplay between a number of factors, discussed in detail in Chapter 2:

- the incentives he or she faces to engage in collective economic action;
- the resources or assets that the household and its participants command; and
- the household's predisposition towards participating in such organizations, which, as discussed in Chapter 2, is influenced by their previous experience of collective action and other institutional issues.

Chapter 2 mentioned three types of incentives for a farmer to engage in collective economic action:

(1) market incentives (i.e., market characteristics or signals that justify a household's investment in the time and other resources required to join and participate in an EAC; see Chapter 2 and especially Table 2.1);

(2) political incentives (i.e., policies and public resources that create the political opportunity and lower the costs and uncertainties involved in a decision to join an EAC);

(3) incentives provided by intermediate agents, such as NGOs, technical advisors and extension agents, etc. (who provide leadership in signalling alternatives to the *status quo*; models of organization; technical and entrepreneurial expertise; access to information and to networks extending outside the rural communities; and sometimes financial resources, all of which lower the direct and transaction costs of organizing). Faced with such incentives, the capacity of a household to respond depends on its capital assets, including natural, human, physical, financial, and social capital.

5.2 Method

The methods used in this chapter are discussed in detail in Chapter 3, section 3.2.

Aim	Methods and information source	Sample size
To describe and compare EAC members and non-members in terms of household and farm characteristics.	Survey of household and farm characteristics (General Survey).	3000 households and farms. Sample is statistically representative of the population of small farms in five regions of Chile (where 72% of all small farms in the country are located).
To compare EAC members and non-members in terms of farm net margin and household annual income.	Farm production costs and household income composition survey (Costs Survey).	602 households and farms, sub-sampled from the sample of 3000 households and farms.
To identify factors that contribute to a small farmer being an EAC member.	Probit analysis using data from the General and Costs Surveys described above.	471 households and farms with complete information, from the General and Costs Surveys.
To identify factors influencing the decision by farmers to set up an EAC.	Three-day workshop with farmer leaders belonging to 27 EACs.	27 farmers from the same number of EACs.

5.3 Comparison between EAC participants and non-participants

In this section I compare the characteristics of the individuals, households and farms of EAC participants with those of non-participants. The data come from a cross-sectional survey and I do not have information on the characteristics of the individuals, households, and farms before they decided to join an EAC. As discussed in Chapter 3 (Section 3.2), the reader should be aware that correlations between participation in an EAC and any of the variables included in the analysis, do not imply causation.

5.3.1 Levels of participation by type of organization and region

Nearly three-quarters of all rural households are affiliated to an organization of some kind (e.g.., for economic, social, recreational or religious purposes), but only one-fifth of them are in an EAC. One-third of the participants of rural organizations belong to an EAC. The participation in EACs is statistically independent of participation in rural organizations of some kind.

Table 5.1 shows that there are strong regional variations in the degree of participation, both in rural organizations and in EACs. Moreover, there are regions with high participation in rural organizations and low levels in EACs, and *vice versa*. There are also regions where participation is either high or low in both types of organizations. Statistically speaking, the correlation between the degree of participation in rural organizations and EACs, by regions, is low and non-significant. High levels of civic participation do not necessarily lead to similar degrees of participation in economically-oriented organizations. I would hypothesize that a high density of civic organizations aids the formation of EACs by providing leadership, accustoming people to working with others, providing information about which individuals can or cannot be trusted, or providing a forum where people can discuss new collective action initiatives. But these activities do not necessarily foster collective economic action; just as in an urban setting being a member of the same sports club as another person does not necessarily mean that one will become his or her business partner.

Table 5.1 Participation in rural organization and in EACs by region (percentage of households)

Region	Rural organization	EAC
V irrigated	50	25
VI irrigated	N/A	N/A
VI dryland	N/A	14.3
VII north irrigated	90.9	48.5
VII south irrigated	87.2	12.8
VII dryland	79.2	16.7
VII piedmont	87.5	28
VII-VIII rice	69.6	4.3
VIII irrigated	82.4	13.7
VIII dryland	51.2	4.9
VIII piedmont	60.9	0
X red clays	69.2	34.6
X *ñadis*	81.1	47.3
X *trumaos*	57.4	34.4
X *Chiloé*	76.7	6.7
Total	**73.1**	**21.5**

Note: *Ñadis* and *trumaos* are local names for particular soil types. The area where these soils are prevalent are known by the same name. Chiloé is a large island in Region X.

High civic and economic participation occur in only a few regions; those where the farming systems and markets used by small farmers create incentives for economic collective action (e.g., VII irrigated region North, with its fruit, vegetables and berries; and X region *Ñadis*, where milk production is a primary enterprise). High civic participation and low EAC participation occurs in some areas with a strong rural identity and culture, such as the island of Chiloé, but where subsistence potato, wheat and sheep farming are also very important. In fact, there are a couple of regions with lower than average levels of civic participation and higher than average participation in EACs (e.g., the *trumaos* area in the X Region, where potato is the predominant crop of small-scale farming). These results are consistent with the discussion in Chapter 2 of market conditions under which EACs can make an effective contribution to their members.

5.3.2 EAC participation and cropping systems

According to the conceptual framework presented in Chapter 2 (in particular Table 2.1), a household's interest in joining an EAC partly depends on the incentives derived from its specific productive or market environment.

Table 5.2 shows that participation of milk producers in EACs is significantly higher than would be expected statistically if product and market orientation is not influencing such a decision. For many of them these organizations are the only way they can respond to the new grades and standards being enforced by the dairy industry. For them, the only alternatives to collective action would be to purchase an individual cooling tank (which requires a certain scale of production as well as the financial capacity to invest), or to remain in the informal milk market.

Table 5.2 Participation in EACs by enterprise (percentage of households who produce a given product)

Enterprise	Participation in EAC
Milk	54.6**
Wheat	14.5**
Beans	19.6
Potatoes	24.4
Total	**21**

** Chi-square test significant at 1%

In the case of wheat and bean producers, there is no advantage to organizing for marketing these commodities (Table 2.1 in Chapter 2). There are no significant market entry barriers; the price is set through fairly transparent mechanisms; there are plenty of buyers even in the most remote areas; there is no way to differentiate one's own product; transaction costs are very low; and economic risk in wheat is regulated in Chile through the operation of 'price bands' that attenuate the year-to-year fluctuations of international prices. Under these conditions, farmers would have little to gain from a marketing organization.

Potato producers face more or less the same market conditions as those engaged in wheat and bean production. In fact, a recent study (Vargas and Foster, 2000) which examined the market conditions for the 15 most important Chilean agricultural products found that the potato market is the closest one can find to a 'perfectly competitive' market. However, in this case there are two conditions that may create an incentive for joining an organization: potato prices fluctuate widely from year to year, so the degree of economic risk is rather high; and if an organization can differentiate and process its product, it may be able to access the supermarket outlet, where prices can be significantly higher than in the spot market. However, for an EAC to be able to intervene in any of these two levels, it would have to be able to market an extremely large volume of potatoes more or less constantly throughout the year. Achieving this goal is probably beyond the means of most, if not all, the existing local or regional potato-marketing EACs.

5.3.3 Rural poverty

Chile uses the concept of an official poverty line to monitor poverty. A household is considered extremely poor if its per capita income is not sufficient to cover the cost of a 'basic food basket', and is defined as poor if the income can meet food needs but not those of clothes, housing and basic services. At the time of the survey, the rural poverty line was set at $ 636 per capita/year, and the extreme poverty line was $ 363 per capita/year.

There are statistically significant differences in the degree to which these different kinds of households participate in EACs (Table 5.3). Participants in EACs are concentrated in the non-poor category, with a much lower representation of extremely poor households than in the control group. Yet EACs do have a higher proportion of poor households than the non-participant category[25].

[25] At this point it is particularly important to remind the reader that the data do not permit us to establish any causality between participation in an EAC and the position of the households in this classification of poverty. From this result we cannot conclude that participation in an EAC results in a household overcoming poverty, or if in fact the poorest participate less, either by their own free will or by being excluded.

Table 5.3 Poverty and participation in EACs

Type of household	**Participants (%)**	**Non-participants (%)**
Non-poor	59.1	51.5
Poor	18.3	13.3
Extremely poor	22.6	35.2
Total	**100**	**100**

Chi^2 significant at 5% level

5.3.4 Human capital

The heads of households which participate in EACs tend to be, as a group, somewhat better educated than the non-participants. Among non-participants, 73% of household heads have no schooling or only incomplete primary education, as compared to 57% in the EAC participants group. These differences are statistically significant in a Chi^2 test.

However, there are no other important differences in other human capital variables, such as household size, age of the household head, number of members in the labor force, dependency ratio (economically inactive / active members of the household), or, surprisingly, percentage of female-headed households (Table 5.4).

Table 5.4 Human capital and participation in EACs

Variable	**Non-participants**	**Participants**
Household size (average number of members)	3.92	3.94
Household members in the labor force (average number)	2.7	2.8
Non-working / working household members (average number)	1.4	1.3
Age of head of household (average years)	55.3	57
Female-headed households (%)	10.4	8.7
Head of household, no schooling (%)	7.6	7
Head of household, incomplete primary education (%)	65.1	49.6
Head of household, complete primary education (%)	14	20
Head of household, incomplete secondary education (%)	5.2	8.7
Head of household, complete secondary education (%)	6.7	7.2
Head of household, further education (%)	9	7.5

5.3.5 Farm size

Participants in EACs have larger farms than non-participants (Table 5.5). However, this conceals a location effect, since most participants tend to be located in the south where farms are larger but less productive per hectare due to soil and climate constraints. When controlled by agroecological zone, the differences in farm size are only statistically significant in one of the regions. Also, there are no statistically significant differences between members and non-members of EACs in the number of irrigated hectares per farm, nor in the proportion of the farm under irrigation.

Table 5.5 Farm size and EAC participation

Variable	Non-participants	Participants
Average farm size (ha)	17.6	28.7
Average irrigated farm area (ha)	2.9	3
Share of farm under irrigation (%)	29.2	23.9

5.3.6 Crop yields and prices

I was able to analyze mean yields for six crops. EAC participants have significantly higher yields for oats, potatoes and beans. There are no statistically significant differences between EAC participants and non-participants in the yields of corn, sugarbeet or wheat.

I examined the mean price received by EAC participants and non-participants for 83 different products. The conclusion is clear: EACs have not been able to negotiate better prices for their members' production. Participants in EACs only received statistically significant higher prices for short-grain rice, dry green peas and garbanzo; all of which are rather minor crops in peasant farming systems. In no case did EAC participants receive lower prices than non-participants.

5.3.7 Diversification into non-traditional crops and farm enterprises

Traditional crops in Chile are those that were predominant in the country until the late 1970s. The most important traditional crops are wheat and maize; grain legumes; the so-called traditional industrial crops (sugarbeet, oil crops, and tobacco); traditional varieties of wine; and potatoes. Traditional animal enterprises include milk and meat from double-purpose cattle, and milk from dairy cattle. Non-traditional crops are those produced for the export market, agroindustries, and retail market (supermarkets and restaurant chains). They include fruit, fresh vegetables produced under intensive cropping systems, agroindustrial vegetables (e.g., tomatoes for tomato paste), quality wine, flowers, and seeds. Non-traditional animal products include all specialized systems using modern technologies. As the reader will rapidly see, this is a confusing classification, in that the same crop can be considered both traditional and non-traditional, depending on the market it is destined for and the production technology used. However, I am using this classification because it is the one applied in Chile.

Diversification away from traditional commodities has been an important objective of public policies and private investments. This is a reaction to macroeconomic and trade policies that have significantly decreased Chile's competitiveness in these non-traditional products. However, there are no significant differences between EAC participants and non-participants in the number of hectares growing non-traditional crops per farm (in both cases, an average of less than 1 ha per farm).

5.3.8 Access to non-traditional markets

Traditionally most small Chilean farmers rely on middlemen to buy part of their harvest at the farmgate. Given EACs' emphasis on marketing, it is surprising that there are no significant differences between EAC participants and non-participants in terms of the share of their production that is sold in formal markets, such as supermarkets, restaurant chains, or agroindustries. Around 25% of the harvest (by gross value) is sold in these markets for both members and non-members. There are also no significant differences between EAC participants and non-participants when one looks at the percentage of households that have production contracts with agroindustries (around 12% in both cases). This means that in 1997 many EACs were still selling their members' products in traditional markets.

When I do this same analysis separately for milk, potato and wheat producers (the three products for which I have sufficient data points), then I find that milk producers who participate in EACs, on

average sell slightly less than half of their production in formal markets (mostly large dairy plants), while non-members on average only sell a quarter of their production in those markets, the rest going to the middlemen. The difference is highly significant from a statistical point of view. On the other hand, the results for potato and wheat producers show no differences between EAC participants and non-participants. These results are in line with the conceptual framework presented in Chapter 2 and in particular in Table 2.1.

5.3.9 Access to technical assistance services and credit

In Chile, agricultural technical assistance is provided to small farmers by non-governmental agencies (NGOs, private consultant firms and individuals, and small farmers' organizations), under contract to government agencies, the most prominent of them being INDAP. As shown in Figure 5.1, the vast majority of small farmers who participate in EACs have access to these INDAP services, while half of the non-participants receive this type of support. Seen from another angle, almost three-quarters of the small farmers who receive technical assistance from INDAP, are not participating in an EAC. All these results are statistically significant. What this means is that participation in EAC does increase the access of a small farmer to technical assistance and advice, but that being a member of these organizations is not a *sine qua non* condition for receiving these services.

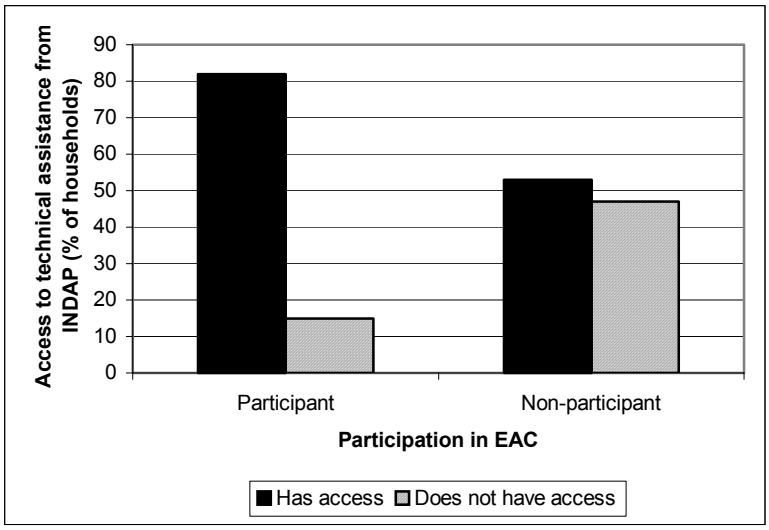

Figure 5.1 EAC participation and access to INDAP technical assistance services

More or less the same trends are observed for credit provided by INDAP, except that there is even less discrimination against non-participants, since two-thirds of them still have access to loans (Figure 5.2). Close to three-quarters of all INDAP credit customers are not members of EACs. Of those EAC participants who have access to INDAP credit, 42% receive long-term loans, as opposed to only 26% of the non-participants who are financed by INDAP. All these differences are statistically significant As can be seen in these results, INDAP does not condition loans on being an EAC member. Some loans require collateral and others do not, but this is not contingent on being an EAC member. When required, the collateral is requested directly from the loan recipient (whether an individual, an EAC or some other type of rural organization). EACs must commit their own assets as collateral - and sometimes that of the members as well, depending on the size of the loan - only when they are the direct recipients of the loan. Interest rates are exactly the same for all types of loans. Loans to EACs do have some advantages, such as higher loan size limits. EACs often process as one single loan application the sum of the individual loans required by their members; this reduces the cost of the loan process both to the members and to INDAP.

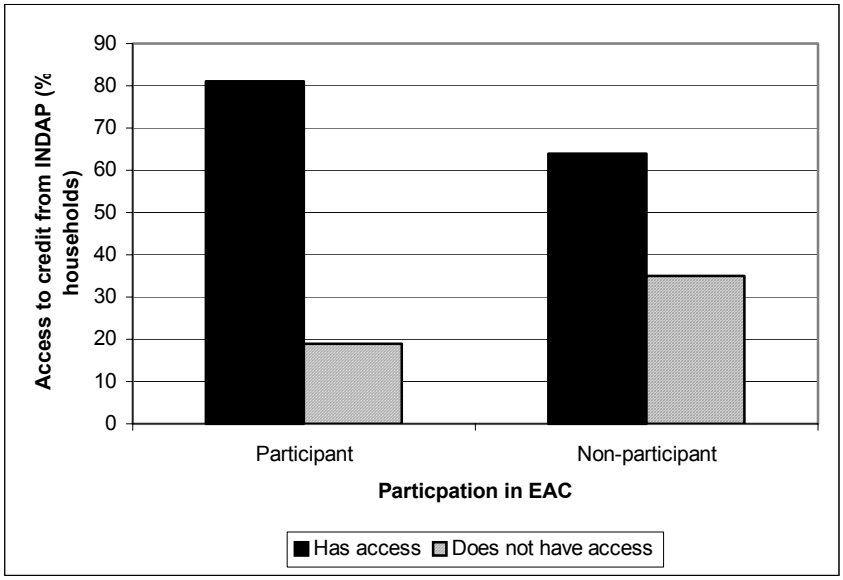

Figure 5.2 EAC Participation and access to credit from INDAP

5.3.10 Farm and household income

Table 5.6 shows that the net annual household income of EAC-participating households is 43% higher than that of non-participants. The net annual farm income of EAC participants is 96% higher than that of non-participants. The main reason for these annual results is the much higher gross value of production (78%) achieved by participants.

Note in Table 5.6 that the ratio of direct costs (labor plus agricultural inputs) to gross value of farm products is only slightly higher for participants (63%) than for non-participants (58%). This indicates that their profit rates are roughly similar. Also, there are no statistically significant differences between participants and non-participants in the ratio of gross value of farm output to on-farm labor (whether from their own households or hired); yet, participants do invest more household labor in on-farm activities.

Table 5.6 Farm and household income and EAC participation

Variable	Non-participants	Participants
Net annual household income ($)	3,385	4,230 *
Net annual farm income ($)	1,132	2,223**
Gross value of farm output ($)	5,285	9,397 **
Direct costs of farm production ($)	3,088	5,888 **
Fixed costs of farm production ($)	1,065	1,285
Off-farm income ($)	807	869
Unearned income ($)	484	576
Value of on-farm household labor ($)	449	793 **

* = t-test significant at 5%; ** = t-test significant at 1%

EAC participants derive a lower proportion of their gross income from off-farm sources (18%), as compared to non-participants (24 %); the difference is statistically significant. However, this is not due to participants having a significantly lower income from off-farm sources. Whilst participants and

non-participants receive more or less the same gross income from off-farm sources, participants have a much higher total gross income, so the share is lower. In both cases the main source of off-farm income is wage employment in agriculture. There are no differences in unearned income between both groups of households, meaning that they have equal access to social subsidies.

5.4 Deciding factors in the decision to establish an EAC

As described in Chapter 3, a three-day workshop was held with farmer leaders of 27 EACs. The participants were divided into different groups according to their EAC's main product focus. All the groups were asked the same question: *"What were the most important factors that stimulated the formation of the EACs present in this group?"* In this section I first present the results of the workshop (see Section 5.1) classified by producer group (milk, potato, and fruit and vegetable EACs), and then I compare the different groups.

5.4.1 Potato producers' perspectives

Potato producer EAC leaders felt there were three main factors involved in establishing an EAC:

(1) The most important factor is the presence of a leader or a small group that can take the initiative to form an organization. In all cases, these leaders first formed informal groups to do things other than marketing potatoes, such as receiving technical assistance in forest management; sharing the costs of and transport for agricultural supplies and inputs; improving a road or some other similar investment in local infrastructure or services.

(2) The second factor relates to the markets in which they operate. By selling their potatoes themselves, small farmers receive low and unfair prices. Small farmers joined their EAC so that they could negotiate collectively with buyers, and thus obtain better prices for their product. Markets demand larger volumes and higher quality; EACs can help small farmers meet these market demands.

(3) The third factor, according to this group, is the support received from public agencies and programs. In all cases, the informal groups that had carried out successful and largely non-economic initiatives were approached either by municipal governments or by national agencies such as INDAP and FOSIS (the Solidarity and Social Investment Fund), to invite them to participate in programs that required the formation of an EAC. In most of these cases, such programs involved the availability of loans and subsidies to finance investments, working capital and technical assistance, and these resources are what captured the interest of the members of the informal organizations.

5.4.2 Fruit and vegetable producers' perspectives

This group felt that two factors were important:

(1) Most important was intervention by intermediaries, such as traders, NGOs, the National Confederation of Cooperatives, the local priest, and a private technical assistance consultant working under contract with INDAP. In the view of this group, these agents *"motivated the community, brought in financial support, and trained us to work together in EACs"*.

(2) The second most important factor was the need to access new markets. In many cases, this was due to farmers having recently embarked on growing new fruit or vegetable crops, such as cherries or raspberries. The new market opportunities were in most cases identified by a member of the local organization or by the intermediary agents, who *"learned something"*, or *"knew someone"*. With this information and the support of the intermediate agents, the group began to get going.

This group felt that working together created links between neighbors that were then useful when forming an EAC. Kinship links also played a role. However, in the case of some of the vegetable producers, social relationships were initially strained because of having to compete against each other

in limited local markets.

5.4.3 Milk producers' perspectives

This group identified a very long list of factors that brought about an early decision to form an EAC (in all cases, these were Milk Collection Centers):

(1) Market factors: A few years ago, all the dairy agribusinesses began to reject milk that had not been cooled. There was no way to escape this new standard, since all the factories had the same policy. Many sectors were being left out of the itineraries of the milk collection trucks, due to low volume and because the milk they picked up was not cooled.

At the same time, some dairy plants were offering to set up Milk Collection Centers, sometimes even contributing the cooling tank, offering to pay a higher price for higher volume, and, in some cases, even subsidizing the cost of transport. In some cases, two plants would compete with each other to serve a group of small farmers. One of the medium-large dairy agribusinesses (COLUN) is a cooperative owned by farmers, and they were more supportive than the largest firms (e.g., Nestlé and Soprole).[26]

The dairy plants did not want to be responsible for administrating these Milk Collection Centers, and so there was a need for the farmers to establish a formal organization to own, set up and run the center.

(2) Intermediate agents: Technical advisors working as INDAP contractors told farmers about the new dairy agribusiness grades and standards policies. They argued that if the farmers did not organize and set up Milk Collection Centers, they would be left without a market. They knew about centers already working in other parts of the country or region, and had technical and economic information to design the new ones. These technical agents also knew how to approach INDAP and FOSIS - and, in some cases, the dairy firms - to tap the resources (loans and subsidies) available for setting up a center.

(3) Government agencies: INDAP and FOSIS provided the loans, subsidies and technical assistance required to set up a Milk Collection Center. INDAP insisted that in order to set up a Milk Collection Center, a group would need to establish itself as a formal EAC (e.g., to be able to buy the land and equipment, contract the electricity services, receive the payments from the dairy plant, etc.). INDAP would often subsidize in part or in full the legal costs involved in establishing an EAC. In many cases, INDAP insisted the group receive technical assistance from private contractors before agreeing to give out a start-up loan.

(4) Rural communities: In all cases, the farmers perceived the new grades and standards policies as a threat. Under these conditions, *"a hidden leader"*, a member of the community or a small group, took the initiative to mobilize other farmers to respond to the threat. In only one case, the community as a whole reacted, because they already had an informal neighborhood organization that had carried out many projects to improve the local school, roads, church, etc.; this group was able to react very fast to the offer by one of the dairy firms to set up a Milk Collection Center, while the communities that lacked these organizations needed more time to start up the process. Individuals within the communities are also important because in almost all cases, one of the neighbors donated the piece of land (usually around 0.5 ha) needed for housing the cooling tank.

5.4.4 Common factors

The three groups in the workshop identified the same factors behind their early decision to organize,

[26] By *"more supportive"*, the farmers basically mean that COLUN had a more helpful attitude to finding solutions to the problems that the farmers could have in setting up the EACs, while the largest firms simply would establish their conditions and then it was up to the farmers to meet them in whatever way they could. However, prices, grades and standards are more or less the same across these different dairy firms.

but with differing emphases on their relative importance.

The process of setting up the milk, fruit and vegetable producer EACs was catalyzed by new market trends. In the case of milk, a change in grades and standards in the dairy industry threatened to put them out of business. For fruit and vegetables, the traditional markets were insufficient or inadequate to absorb diversified products.

Potato producers emphasized the role of pre-existing community organizations as platforms to facilitate the start-up of economic collective action. Market conditions were also a factor, referring to the long-standing aspiration of small farmers of being able to negotiate better prices with the traditional local merchants and traders.

All the groups highlighted the importance of community organizations and of individual or collective leaders. The former provide the initial fora for debating alternatives. These community groups, whether formal or informal, 'incubate' the initiatives that will become an EAC. Individual and community leaders played a clear role in all the cases present in the workshop. Participants appeared to place greatest emphasis on the role of these persons or groups in motivating other farmers. This attitudinal or political leadership provided by local leaders is complemented by the more 'technical' leadership of external agents. If local leaders build on farmers' willingness to question the *status quo* and to take action, external agents provide the 'road map' for collective action, as well as the networks needed to obtain information, knowledge, expertise and financial resources.

The role of government agencies was mentioned by all three groups. It appears to be stronger or more decisive for potato growers, where the market stimulus is weaker, but is also very important in the case of milk and fruit and vegetable producers who require the financial and technical support of government agencies to set up their organizations and start their operations. In other words, for potato growers, public programs both stimulate and facilitate economic collective action, while for milk and fruit and vegetable producers, the stimulus comes from the market and government provides the means to respond.

5.5 Factors affecting the probability of being an EAC member

Table 5.7 shows the results of the Probit regression analysis, using the data from the 1997 survey of small farms and households (see Chapter 3). The conceptual model is as follows:

(1) There will be significant location effects, as location is related to factors that create incentives or disincentives to becoming a member of an EAC, such as access to markets and the structure of farming systems.

(2) Milk producers are more likely to join EACs, since there are significant barriers to market access in the dairy industry if a farmer is not organized. There will be no effects, or the effect will be negative, when the farmer is a potato, wheat or bean producer, as farmers can produce and sell these commodities in the spot market, without needing to work through an organization.

(3) All the human capital variables have a positive effect on the probability of being an EAC member, since these households will tend to be wealthier, more informed and more involved in social networks that extend outside their communities. Households headed by women are less likely to be EAC members as these households face very significant constraints on their capacity to invest time and other resources in any but the most indispensable production and domestic activities. Education will have a positive effect on the probability of EAC membership, as better educated households have access to more information and contacts and have higher income and other assets.

(4) Total farm size and access to irrigation will both have a positive effect on the probability of being an EAC member, as these households will be wealthier, more linked to market and non-market networks, and more dependent on farm income.

(5) Access to technical assistance will have a positive effect on the probability of being an EAC

member, as farm advisors provide a strong link to the public programs and instruments available to support EACs.

(6) Being poor and extremely poor will diminish the probability of a household being a member of an EAC, as they derive a large fraction of their income from non-farm sources and their farming systems are oriented not to market exchange but to household food security.

Table 5.7 Determinants of EAC participation

Number of observations = 471 LR Chi^2 = 196.9 Prob. > Chi^2 = 0.0000 Log likelihood = -163.3451 Pseudo R^2 = 0.3761				
Variable	**Coefficient**	**Standard error**	**z**	**P>|z|**
Location in Northern irrigated VII Region[1] (1 = yes)	1.26	.73	1.72	0.085
Location in the *Ñadis* area of the X Region[1] (1 = yes)	.83	.51	1.61	0.100
Milk producer? (1 =yes)	1.30	.22	6.00	0.000
Potato producer? (1 = yes)	-.35	.19	-1.82	0.069
Wheat producer? (1 =yes)	-.11	.20	-0.54	0.589
Bean producer? (1 = yes)	.00	.26	0.01	0.995
Number of household members	.04	.05	0.90	0.370
Age of head of household	.02	.01	2.18	0.029
Gender of head of household?	-.06	.28	-0.20	0.840
Incomplete basic education? (1 = yes)	-.25	.34	-0.72	0.470
Complete basic education? (1 =yes)	.11	.38	0.30	0.764
Incomplete secondary education? (1 = yes)	.02	.46	0.03	0.973
Complete secondary education? (1 = yes)	.07	.45	0.15	0.884
More than complete secondary education? (1 = yes)	.64	.54	1.20	0.231
Total farm size (ha)	.00	.01	0.97	0.333
Percentage of farm with irrigation	.00	.01	0.291	0.771
Receives technical assistance from INDAP? (1 = yes)	1.33	.20	6.81	0.000
Poor but not extremely poor? (1 = yes)	.21	.24	0.86	0.391
Extremely poor? (1 = yes)	-.33	.19	-1.70	0.090
Constant	-3.25	.82	-4.00	0.000

[1] The remaining 12 location variables are not shown in this table, as they are all non-significant

The model is robust, and all the signs are as predicted in the conceptual model:

- Farmers in the northern part of the irrigated valley of the VII Region have a high probability of being EAC members. Here many small farmers are engaged in high risk, non-traditional crops (vegetables, fruits, berries, wine grapes, etc.) sold in markets with strong access barriers and high transaction costs. Also, being located in the Ñadis area of the X Region, where milk production is important means farmers have a very strong incentive to organize in order to have access to the dairy industry market.

- Milk producers have a high probability of being EAC members. As mentioned before, the quality grades and standards imposed by the dairy industry more or less force most small farmers to organize. Being a potato producer has a strong negative effect on the probability of being a member of an EAC; recent research has shown that this is one of the agricultural markets that works best in Chile, and small farmers would have little incentive (and plenty of disincentives) to join an EAC if the purpose is to market this product in spot markets. The coefficient of the variable for being a wheat producer also has a negative sign, but in this case it is not statistically significant. The constant of the variable for being a bean producer is positive but very low and non-significant. In short, milk producers have incentives to join an EAC, while potato producers have disincentives to do so, with less distinct results for wheat and beans.
- All the human capital variables, aside from gender of the head of household, have a positive sign, but only the age of the head of household is statistically significant, meaning that older households tend to participate more in EACs. The variable for having a female-headed household is not significant, showing that the gender of this individual does not affect the probability of being an EAC member.
- Surprisingly, neither farm size nor access to irrigation have a statistically significant effect, although in both cases the sign of the coefficient is positive, as expected. This means that participation in an EAC is neutral with respect to these types of assets.
- Having access to the technical assistance services provided by private consultant firms acting as subcontractors for INDAP has the largest positive effect on being a member of an EAC. Those farmers who receive these services will have greater support for EAC formation and development.
- Being poor does not have a significant impact on being an EAC member, relative to not being poor: in fact, the sign of the coefficient is positive. However, being extremely poor does have a negative and statistically significant effect on membership. That is, there is some degree of social exclusion, but this applies only to the most disadvantaged households. Whether this is due to the poorest having the incentive but lacking the capacity to participate, or simply to the fact that the poorest tend to derive a smaller fraction of their income from farm sources and engage less in market transactions, is a question that the model does not address.
- Finally, the constant term of the model has a negative sign and is statistically significant, meaning that an individual who does not have the attributes shown in the model to be statistically significant (e.g., being a milk producer, having access to technical assistance, etc.), has a very low probability of being a member of an EAC.

5.6 Discussion

At the start of the chapter I asked three questions: (a) Who are the EAC participants? (b) Are all small farmers equally likely to participate in these business-oriented organizations? and (c) Do the poorest farmers have an equal participation rate as the wealthier farmers?

I will answer these questions with reference to incentives and assets.

5.6.1 Incentives

Among the incentives, the leaders of 27 EACs highlighted the importance of certain market characteristics, in particular: (a) what they perceive as unfair prices resulting from unbalanced power relationships with intermediaries and traders; (b) quality standards that require the use of technologies that an individual small farmer cannot acquire alone; and (c) the need to access new markets for diversified commodities.

As discussed in Chapter 2, market incentives depend on the product. Both the qualitative and quantitative results in this chapter confirmed that small farmers working in markets with higher transaction costs (such as for milk, fruits and vegetables), have a stronger incentive to join an EAC

than those who operate in spot markets with no entry barriers and with a large number of buyers and sellers (as in the case of traditional commodities such as potatoes, beans or wheat). I would especially like to highlight the results in Section 5.3.2 which showed that milk producers have a higher participation rate than potato farmers, who in turn have a higher participation rate than wheat and bean producers.

The desire to extract better or 'fair' prices by acquiring a better bargaining position vis-à-vis middlemen and traders is mentioned by almost all the EAC leaders as an important motivation to set up and join an EAC. In fact, in almost all of the dozens of interviews with individual farmers that I conducted for this research, this usually came out as the first answer to the questions *"Why do small farmers need an EAC?"* or *"Why did you join an EAC?"*. However, as seen in Section 5.3.6, this goal is elusive. In a market economy, 70 or so small farmers (the average membership of an EAC as shown in Chapter 4) are almost always as powerless as a single farmer to influence market prices.

Public agencies and their programs are also powerful sources of incentives to participate in EACs. Many small farmers participating in the workshop stated that the new policies favoring the organization of small farmers, and the new subsidies and loans associated with these policies, helped catalyze EAC formation. This opinion is supported by the analysis in Section 5.3.9, that showed that members of EACs do have greater access to agricultural support services.

Intermediate agents (including representatives from national organizations of small farmers, NGOs, priests, extension agents and political leaders) were also identified by the EAC leaders as key players in stimulating EAC formation. In all cases, they appear to have contributed leadership by informing farmers about ways of organizing themselves, as well as providing access to the necessary contacts with public agencies or markets. In many cases they also contributed financial resources and technical expertise. Where small farmers were facing strong and very specific market incentives to organize (e.g., with milk, and fruits and vegetables), public and intermediate agents pointed out concrete ways to move forward. When the market incentives were less clear (e.g., with potatoes), the stimulus of available public funds appears to have been most influential in getting the process started.

5.6.2 Assets

With respect to assets and capacities, the presence of pre-existing community organizations and informal groups appears to be an important precondition for EAC formation. These organizations provide a social setting where alternatives can be discussed, weighed and decided upon. These community groups 'incubate' the initiatives that will result in an EAC. However, the statistical analysis in Section 5.3.1 shows that while pre-existing community groups can ease the formation of EACs, they do not always lead to the formation of these organizations.

Extremely poor households - but not those that are only 'poor' according to Chilean standards - tend to be excluded from participating in EACs. It is possible that these households have less need for an EAC, as much of their income comes from non-farm sources and only a small fraction of their agricultural production is destined for the market. For these very poor small farmers, the perceived costs of membership may be higher than the perceived benefits, as discussed in Chapter 2. However, we cannot exclude the possibility that the design of public policies is in fact a disincentive for these very poor farmers to join an EAC. For example, the amount of money that INDAP lends to very poor farmers is lower than that which is available for less poor ones, and the intensity of technical assistance is also significantly lower.

Surprisingly - and within the limits discussed above - access to assets such as land, irrigation, or education, does not appear to have a significant impact on EAC participation. The same is true for the head of household's gender.

5.7 Conclusions

Returning to the questions asked in this chapter, the quantitative and qualitative evidence shows that not all small farmers are equally likely to participate in an EAC. Incentives (from markets, government support programs, and intermediate agencies) appear to have a stronger influence on the decision to participate than a household's assets. A key exception is that the poorest farmers will participate significantly less either because of *de facto* exclusion due to the design of the public support programs, and/or because they have less need for an organization whose purpose is to engage in market transactions. A local tradition of forming rural organizations appears to facilitate the formation of EACs, but does not, on its own, seem to have a decisive influence as many regions with high levels of civic participation show low levels of EAC membership.